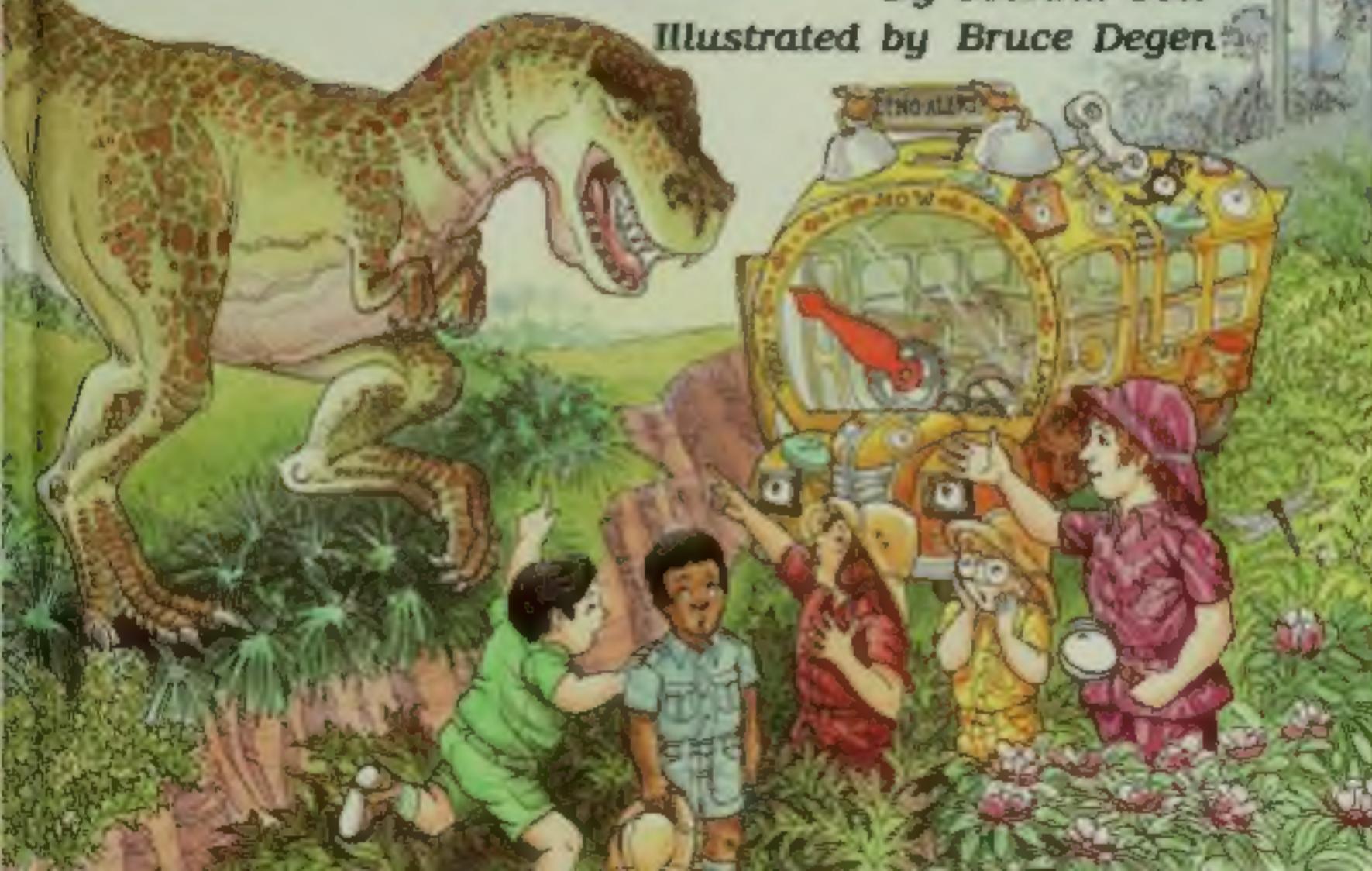


The Magic School Bus

IN THE TIME OF THE DINOSAURS

By Joanna Cole

Illustrated by Bruce Degen

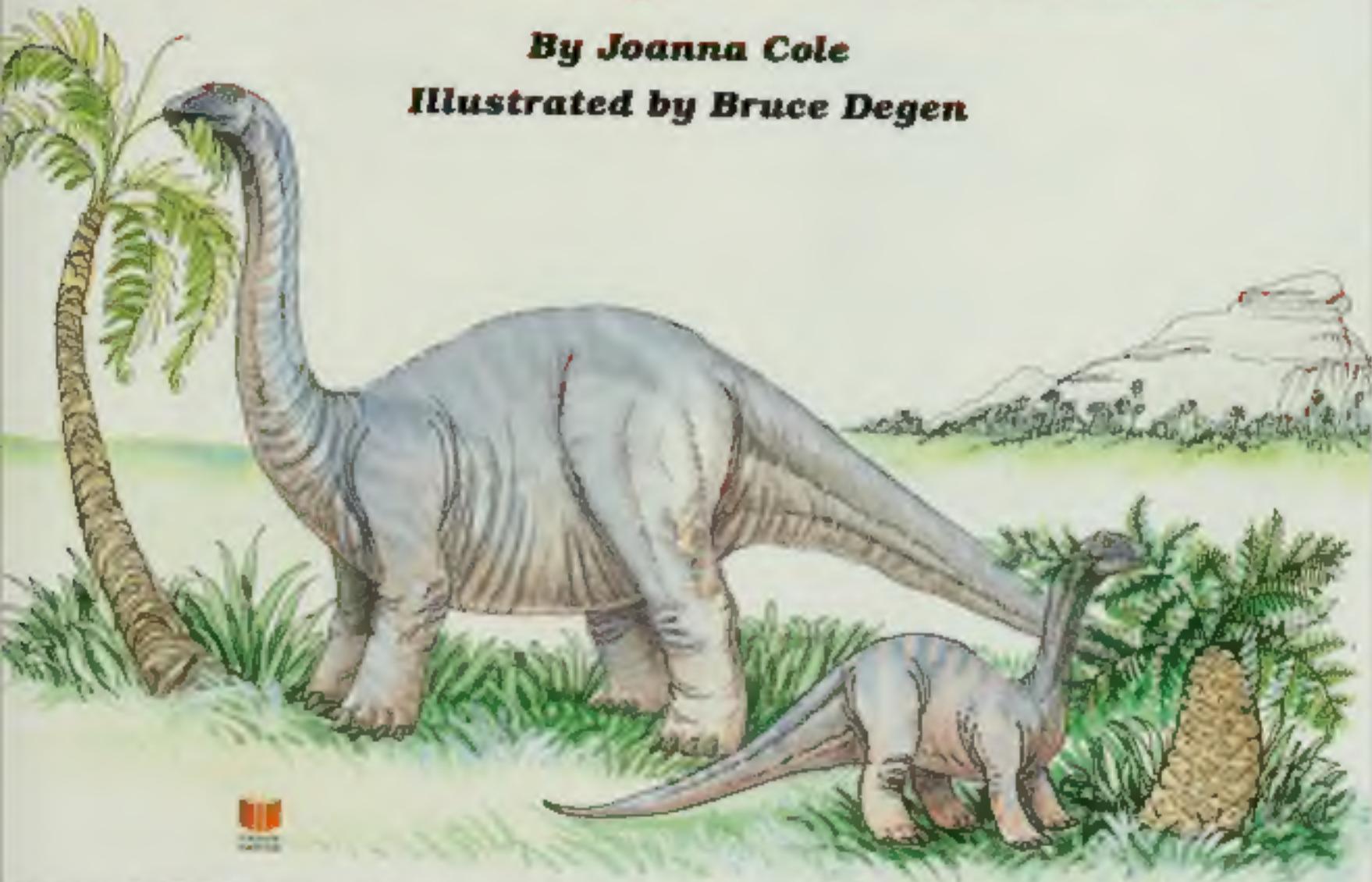




The Magic School Bus in the Time of the Dinosaurs

By Joanna Cole

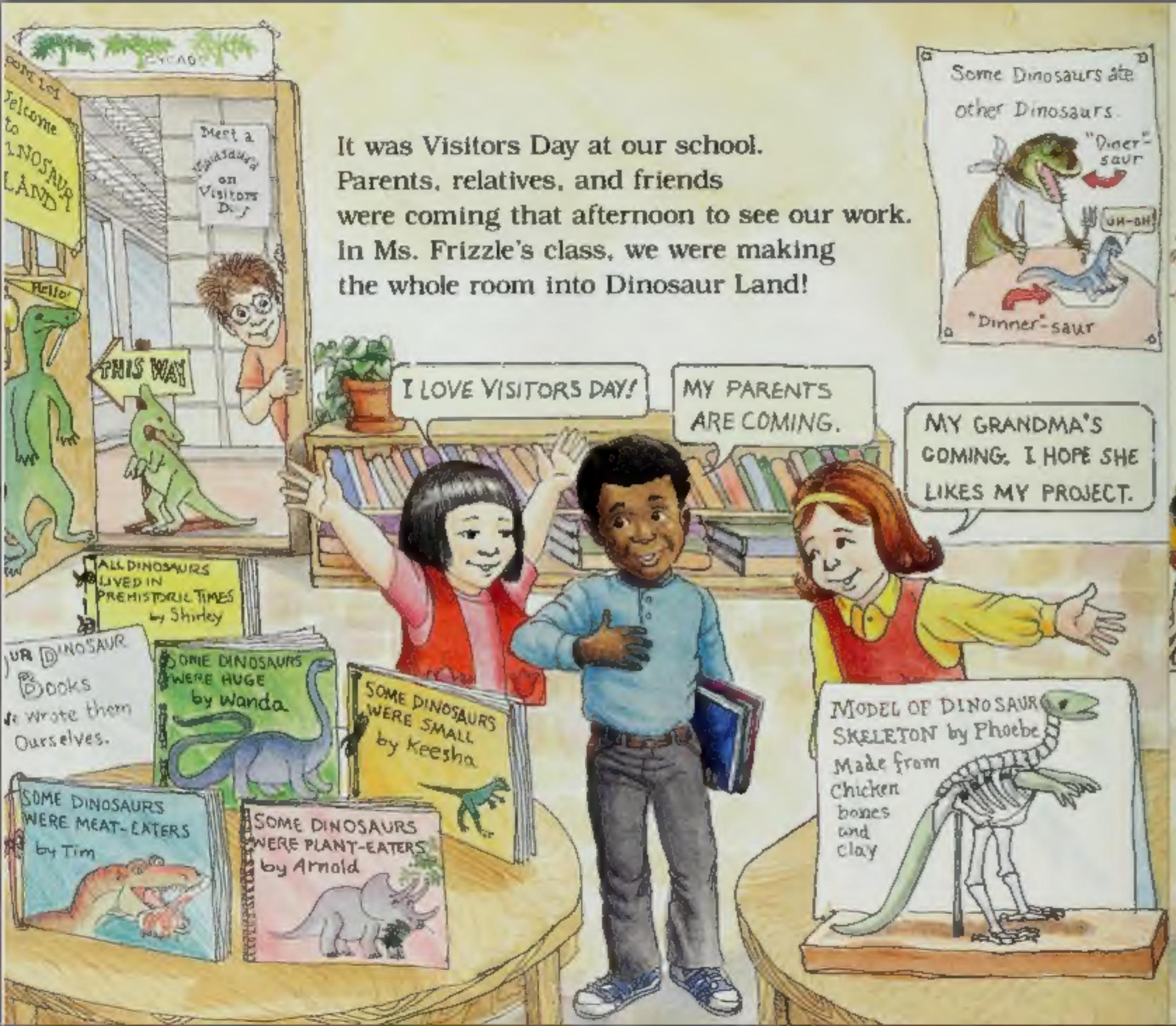
Illustrated by Bruce Degen



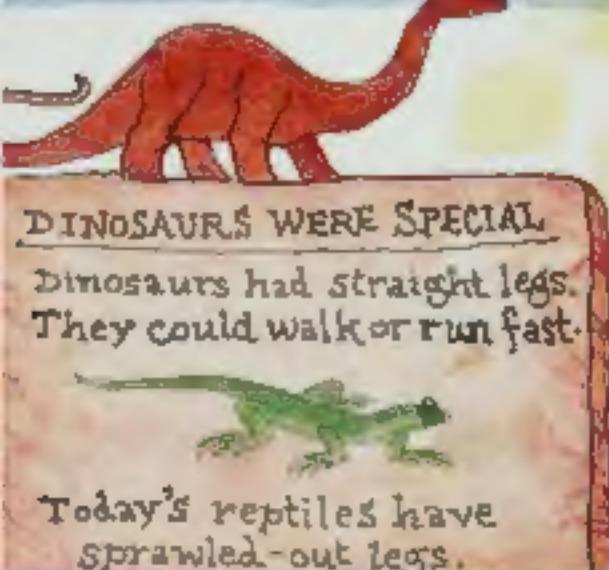
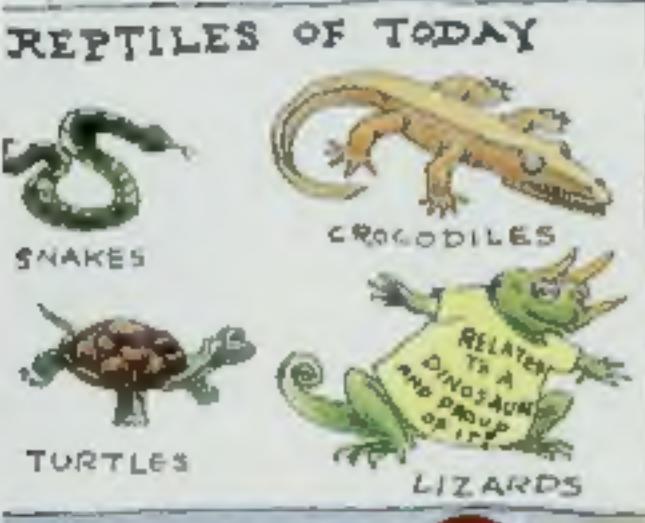
SCHOLASTIC INC. / New York

To Armand Morgan,
our personal guide to the time of the dinosaurs
J.C. & B.D.





- DINOSAURS WERE REPTILES
by Carlos
- Dinosaurs were a group of special prehistoric reptiles. Reptiles are animals that:
 - have backbones
 - have scaly skin
 - lay eggs
 - are cold-blooded



"Our class has been invited to a dinosaur dig," explained the Friz.
"We'll be leaving right away."
As we went out, one kid grabbed the video camera.
Others took along model dinosaurs for good luck.
When you have the wackiest teacher in school,
you need all the luck you can get!

WE'RE LEAVING NOW?

I GUESS MS. FRIZZLE
FORGOT ABOUT
VISITORS DAY.

SHE NEVER FORGOT
ANYTHING BEFORE.



We couldn't believe we had to get on that rickety old school bus again. Kids held their lucky dinosaurs tight, and hoped for the best.

MY LUCKY DINOSAUR
IS TYRANNOSAURUS REX.

MY LUCKY DINOSAUR
IS STEGOSAURUS.

MY LUCKY DINOSAUR
IS WONDERING IF
THIS OLD BUS WILL
MAKE IT!



- COLD BLOOD/WARM BLOOD
by Tim
- COLD-BLOODED animals get most of their body heat from outside their bodies.



- WARM-BLOODED animals make their own body heat.



DINOSAURS WERE SPECIAL

Some dinosaurs may have been warm-blooded. All of today's reptiles are cold-blooded.

NO PEOPLE EVER SAW
A DINOSAUR

by Florrie

When early humans
appeared on earth,
dinosaurs had already
been dead for millions
of years!

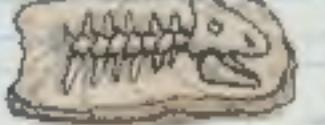
People found out about
dinosaurs from fossils.



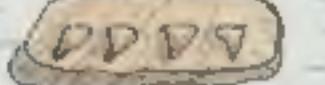
FIVE KINDS OF DINOSAUR
FOSSILS

by Alex

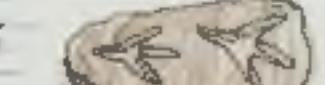
1. BONES



2. TEETH



3. FOOTPRINTS



4. SKIN PRINTS



5. EGGS AND
NESTS



As we rolled onto the highway,
Ms. Frizzle shouted from the driver's seat.
"We're on our way to fossil country, kids!
Who knows what a fossil is?"
Luckily, we had done our homework.
We knew a fossil is anything left
from a prehistoric animal or plant.



After we had been driving for a long time,
we came to a desert where people were working.
Ms. Frizzle said this was the dinosaur dig.
The people were paleontologists —
scientists who study prehistoric life.

HOW A DEAD DINOSAUR
COULD BECOME A FOSSIL

by Carrie

1. The dead body
sank in a river,
and rotted away.



2. The bones were
covered with
sand.



3. In time, the
sand turned
into rocks.



4. The bones
became hard
as rock, too.



DID MOST DINOSAURS
TURN INTO FOSSILS?
NOT ALL DINOSAURS
TURNED INTO FOSSILS;
THEY WERE EATEN.

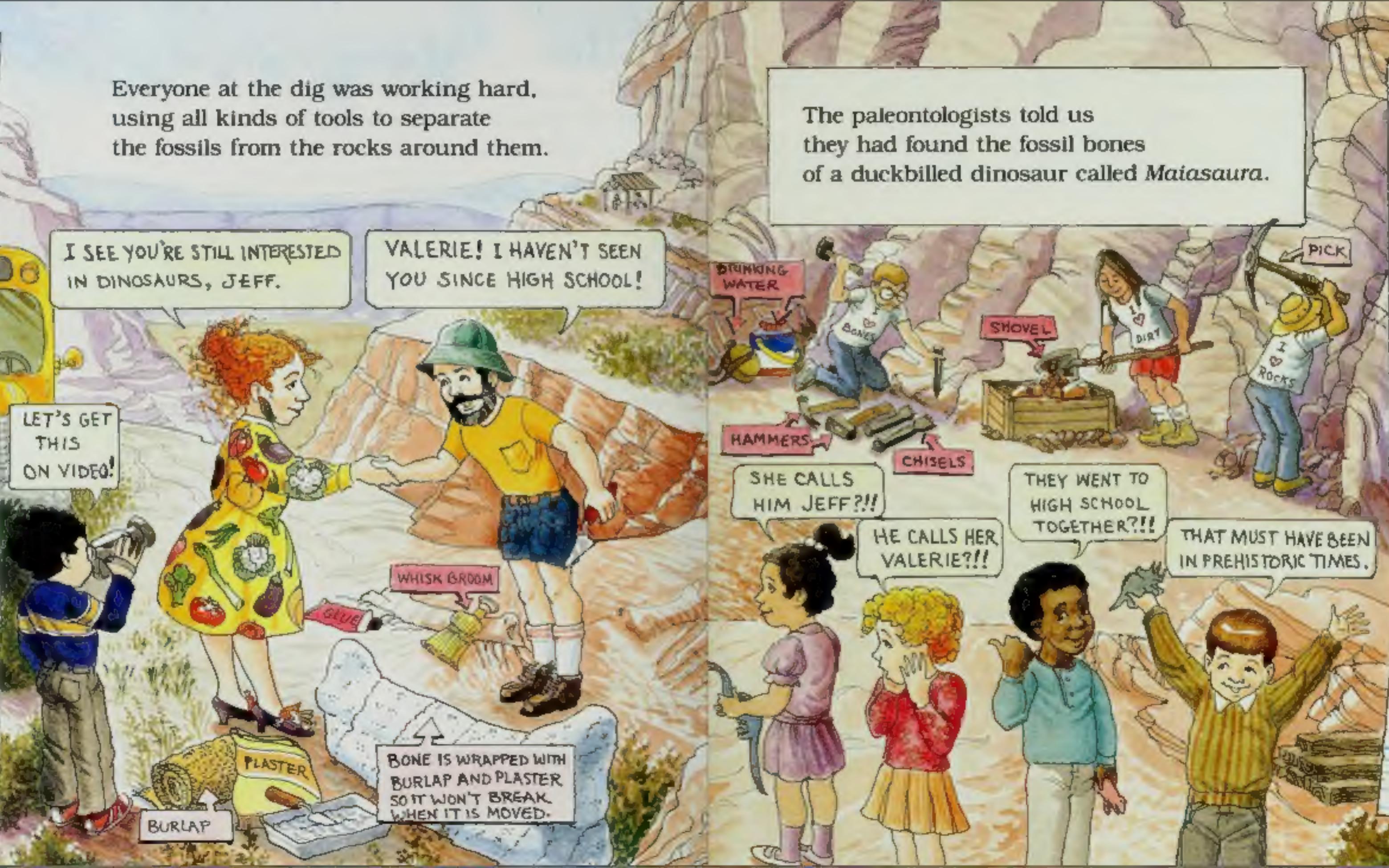
DINOSAURS WERE SPECIAL:
Dinosaurs were on earth
1500 times longer than
humans have been so far.

WHERE HAVE DINOSAUR FOSSILS BEEN FOUND?
by Phil

Everywhere on earth -- even within the Arctic Circle and near the South Pole!

LOOKING FOR DINOSAUR FOSSILS? TRY WESTERN NORTH AMERICA! by Keesha

There are so many dinosaur fossils in the West that the area has been called a fossil treasure trove.



The paleontologists told us they had found the fossil bones of a duckbilled dinosaur called *Maiasaura*.

A DINOSAUR GETS ITS NAME FROM...
by Carmen

1. Something special about the way it lived --



MAIASAURA means "GOOD MOTHER LIZARD" *Maiasaura* took care of their babies.

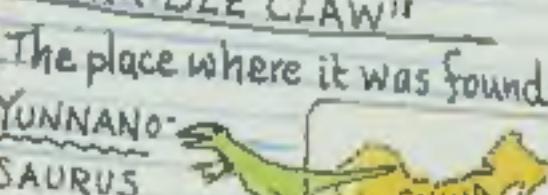
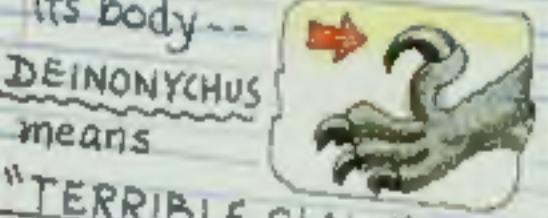
2. Something special about its body --

DEINONYCHUS means "TERRIBLE CLAW!"

3. The place where it was found --

YUNNANO-SAURUS was found in YUNNAN, CHINA.

4. The scientist who finds the first fossils of a dinosaur gets to name it.



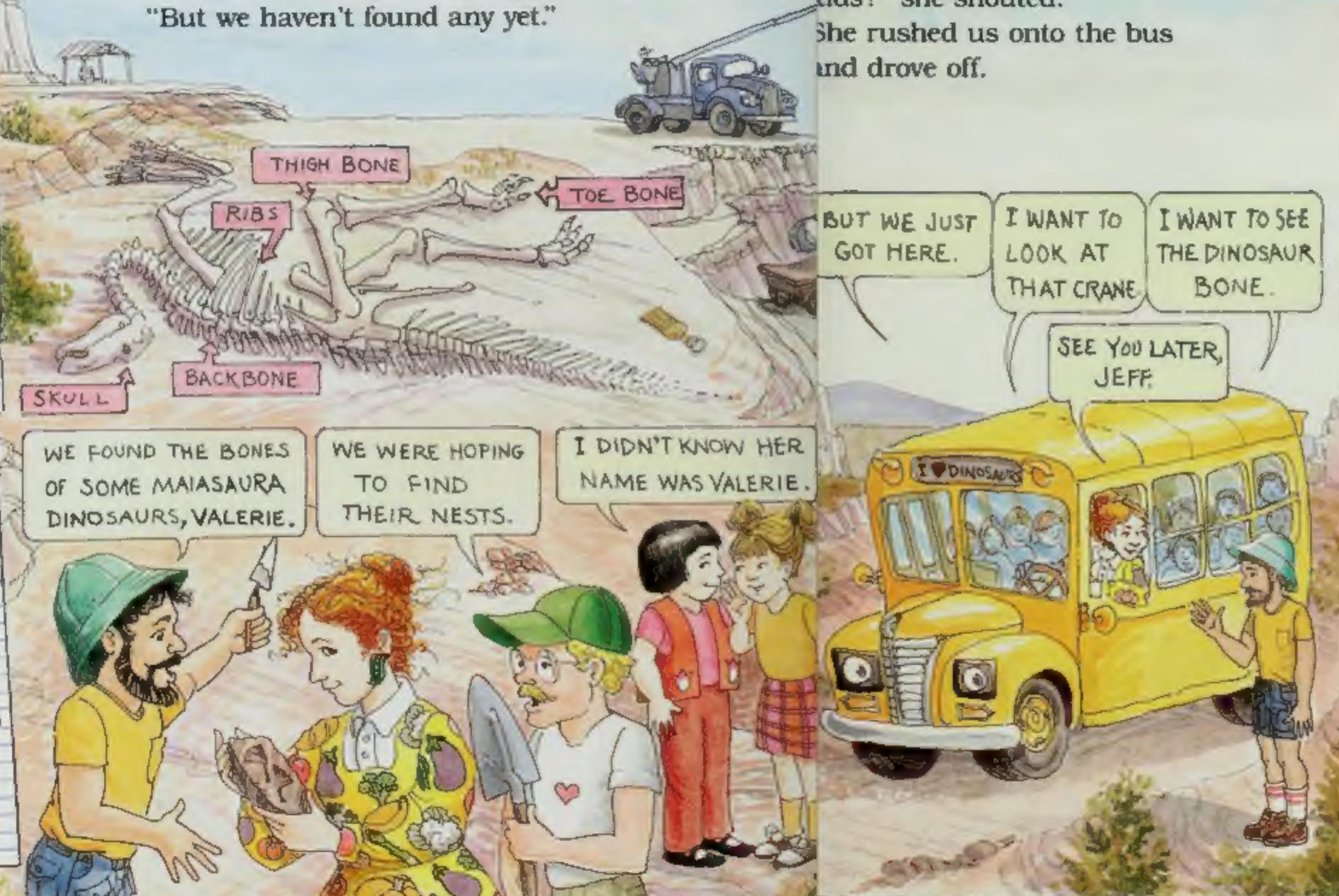
HOW CAN WE TELL WHICH BONES
ARE WHICH? by Shirley

Paleontologists compare
dinosaur bones with the
bones of other animals.

For example, if you know the
thigh bone of a...

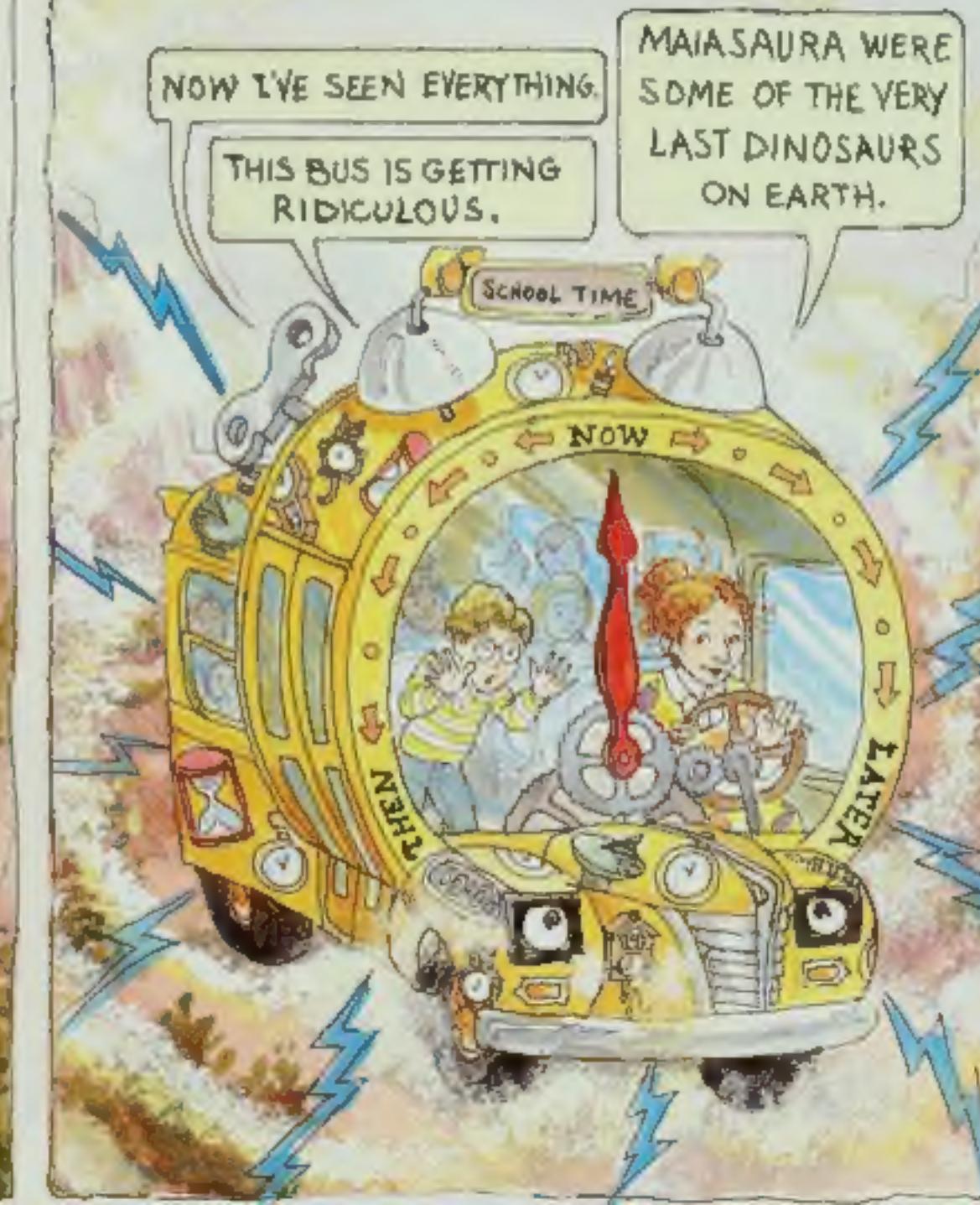


The paleontologists seemed sad.
"We were looking for fossil eggs," they said.
"But we haven't found any yet."



We saw a gleam in Ms. Frizzle's eye.
"Want to look for some *Maiasaura* nests, kids?" she shouted.
She rushed us onto the bus and drove off.

We hadn't gone far when Ms. Frizzle stopped the bus.
She turned a dial on the dashboard, and the bus began to change.
It looked like a giant alarm clock.
Ms. Frizzle said it was a time machine!

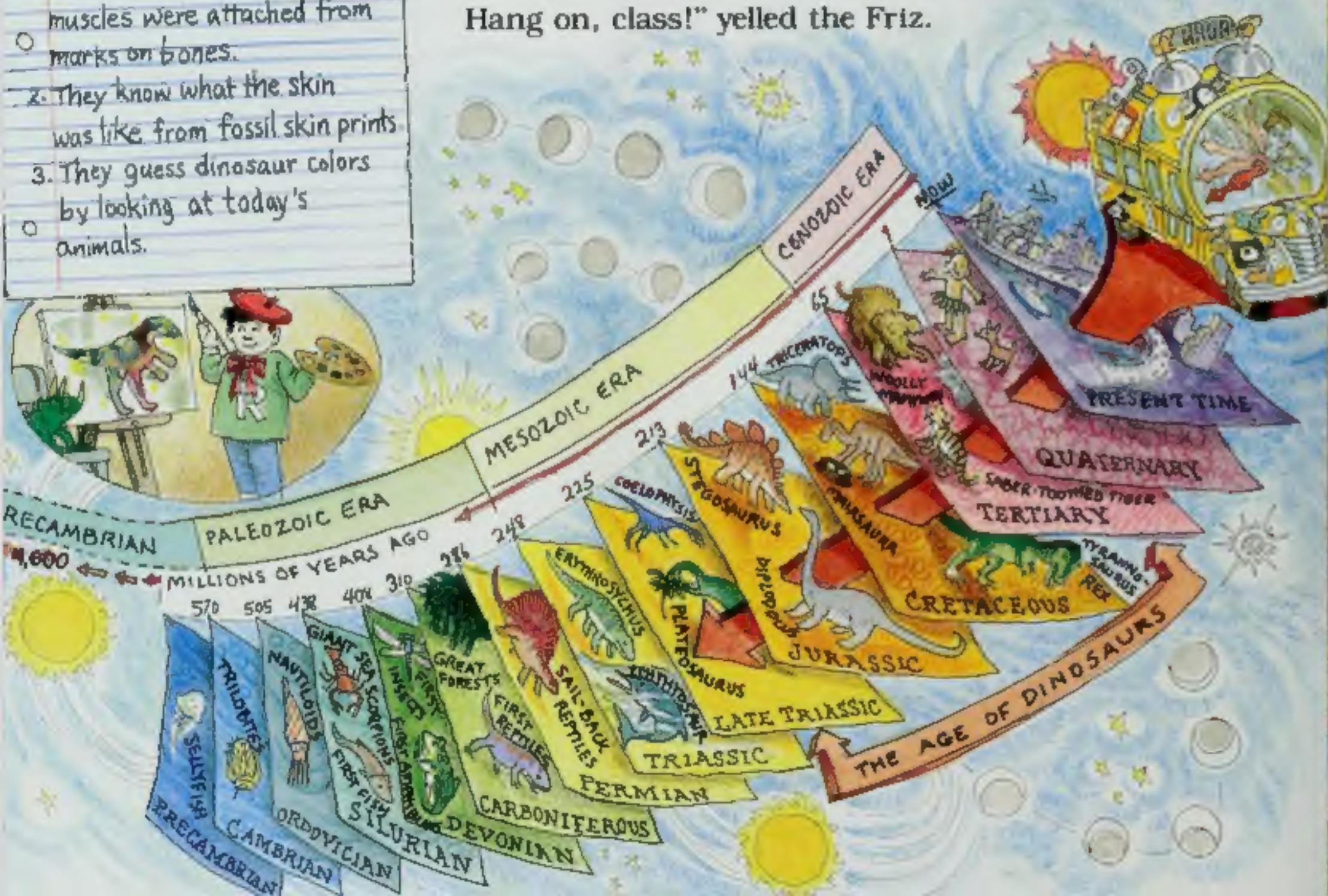


HOW DO WE FIGURE OUT
WHAT DINOSAURS LOOKED LIKE?

by Ralphie

Scientists put dinosaur bones
together.

1. They figure out how the muscles were attached from marks on bones.
2. They know what the skin was like from fossil skin prints.
3. They guess dinosaur colors by looking at today's animals.



The hand on the clock started moving backward:
One hour back . . . one day back . . . one year back . . .
Outside the windows, the desert was whizzing by.
One thousand years . . . one million years . . .
"We're on our way to the time of the *Maiasaura*.
Hang on, class!" yelled the Friz.

Ring! Ring! The alarm went off.
We heard Ms. Frizzle say, "Ooops!
We had a little machine trouble.
We went back too far in time,
but it's nothing to worry about."
Nothing to worry about!
We missed the time of the *Maiasaura*
by millions of years!

CLASS, WE'RE IN THE
LATE TRIASSIC PERIOD--
THE TIME OF THE
EARLY DINOSAURS!

YOU MEAN WE'RE IN
THE SAME PLACE
BUT IN ANOTHER TIME?

YOU MEAN THIS IS WHAT
THAT DESERT LOOKED LIKE
220 MILLION YEARS AGO?

WOW! IT'S A JUNGLE
OUT THERE!



WHAT WAS THE EARTH
LIKE THEN?



One giant continent
called PANGAEA

- Rainy Jungles
- Many deserts
- Warm temperatures
- No winter anywhere!



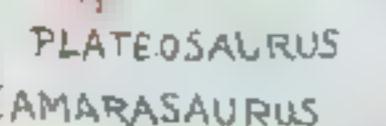
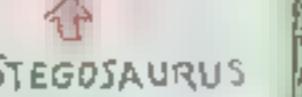
Fossil teeth tell what
dinosaurs ate

by Phoebe

Sharp, pointy teeth
came from meat-eaters.



Odd-shaped teeth
came from plant-eaters.



The Friz pointed to some dinosaurs
that were hunting on the banks of a river.
"Their name is *Coelophys*," she said.
"These early dinosaurs were small and light.
The giant dinosaurs did not develop until later."

COELOPHYS HAVE EXCELLENT
TEETH FOR EATING MEAT.
THEIR TEETH HAVE "SAW"
EDGES LIKE STEAK KNIVES.

TRY NOT TO LOOK
LIKE A STEAK!

Suddenly, a large reptile rose out of the water
and opened its huge mouth.

"That is not a dinosaur," Ms. Frizzle said.
"It's a phytosaur — a crocodile-like reptile."
The phytosaur caught a little dinosaur
and pulled it underwater.

We wanted to get back on the bus, pronto!
But Ms. Frizzle said we had to learn
about Triassic plant life.

ARE MEAT-EATERS MEAN?
by Arnold
No Predators are part
of nature. Hunting is
the only way they can
get their food.

SOME WORDS FROM
DOROTHY ANN
A predator is a
hunting animal.

Prey are the animals
a predator hunts.

I'M A PREDATOR
I'M PREY

TRIASSIC PLANTS

by John

In Triassic times
You would see:



Horsetails Ferns



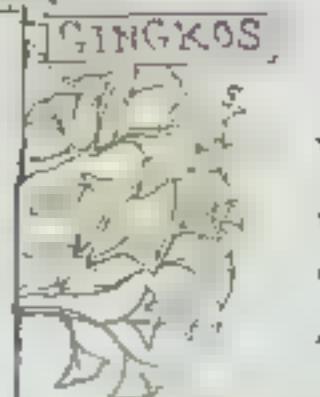
Gingko Conifers



DINOSAURS WERE SPECIAL

Many dinosaurs were
plant-eaters. Only a few
kinds of modern
reptiles are.

Plateosaur Tooth



GINGKOS

We were examining some ferns
when Ms. Frizzle shouted.
"Look at those terrific prosauropods!
They were the first dinosaurs to eat plants!"

I JUST LOVE
TRIASSIC PLANTS,
CLASS--DON'T YOU?

DO YOU HEAR
SOMETHING?

YOU MEAN THOSE
CRUNCHING
SOUNDS?

MS. FRIZZLE
ISN'T THE ONLY
ONE WHO LOVES
TRIASSIC PLANTS

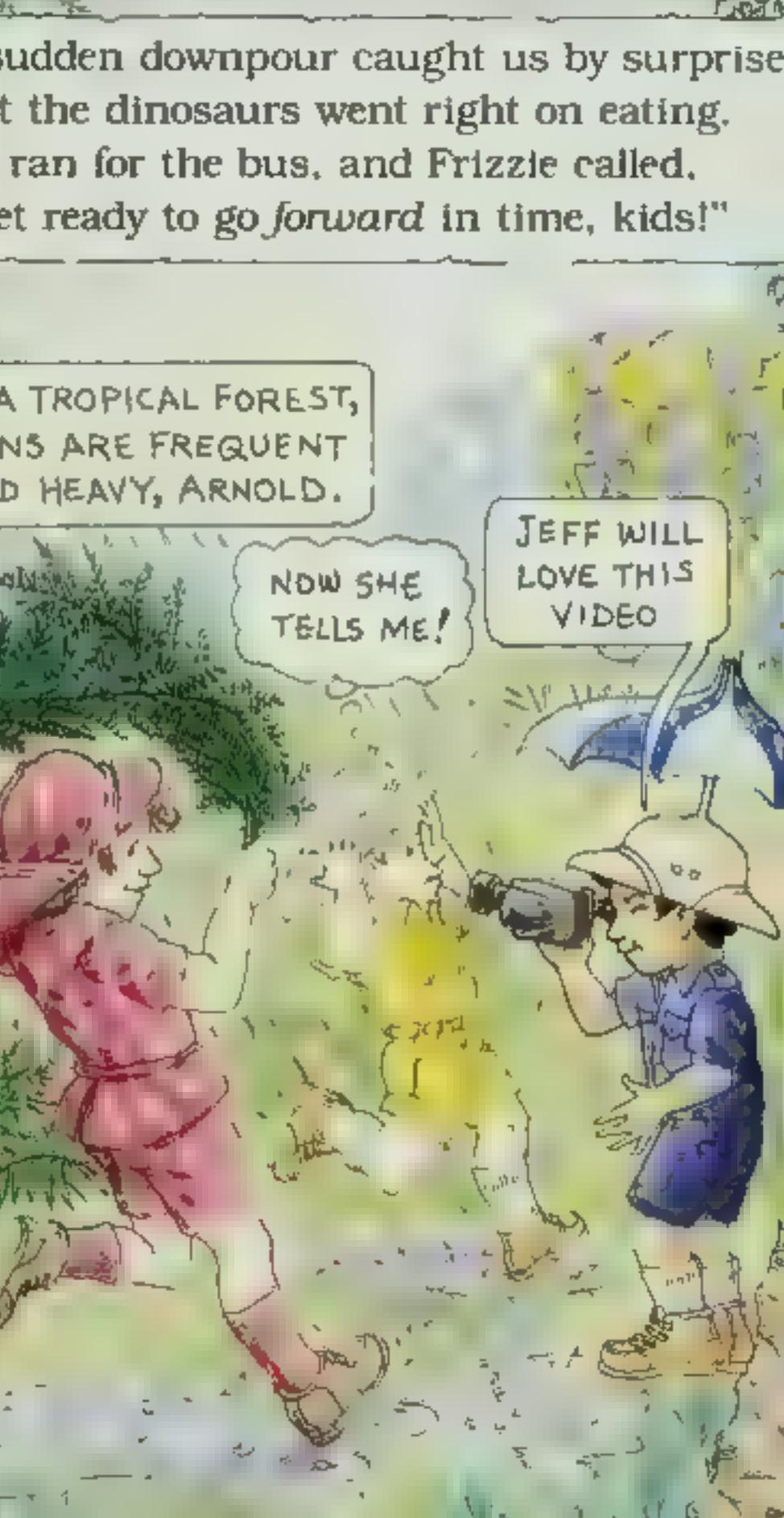


A sudden downpour caught us by surprise
But the dinosaurs went right on eating.
We ran for the bus, and Frizzle called,
"Get ready to go forward in time, kids!"

IN A TROPICAL FOREST,
RAINS ARE FREQUENT
AND HEAVY, ARNOLD.

NOW SHE
TELLS ME!

JEFF WILL
LOVE THIS
VIDEO



THE FIRST MAMMALS
LIVED WITH DINOSAURS

by Rachel

The first true mammals
lived in the Late Triassic.
They were furry rat like
animals



WHAT ARE MAMMALS?

by Wanda

Mammals are animals that:

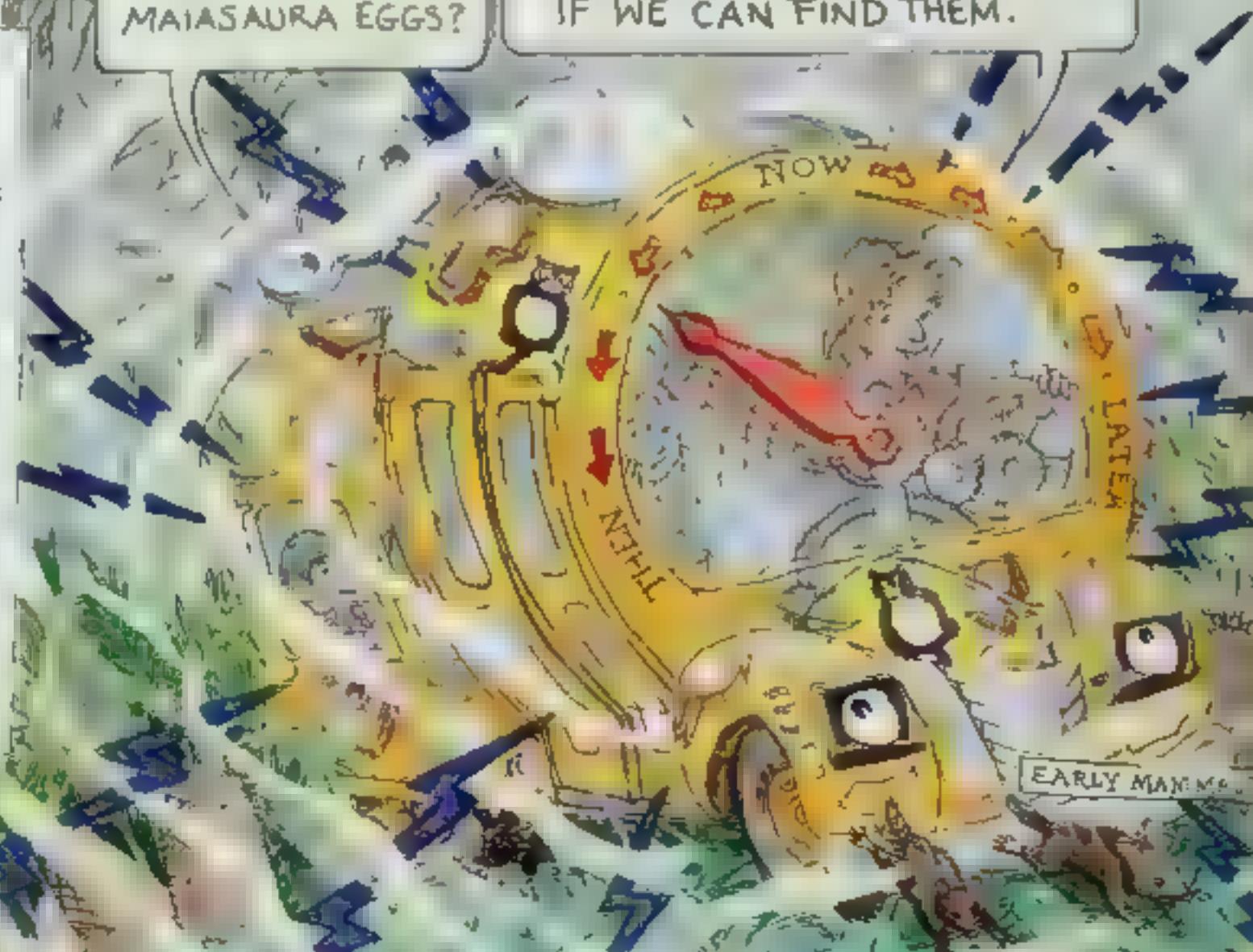
- have backbones
- have hair or fur
- are warm blooded



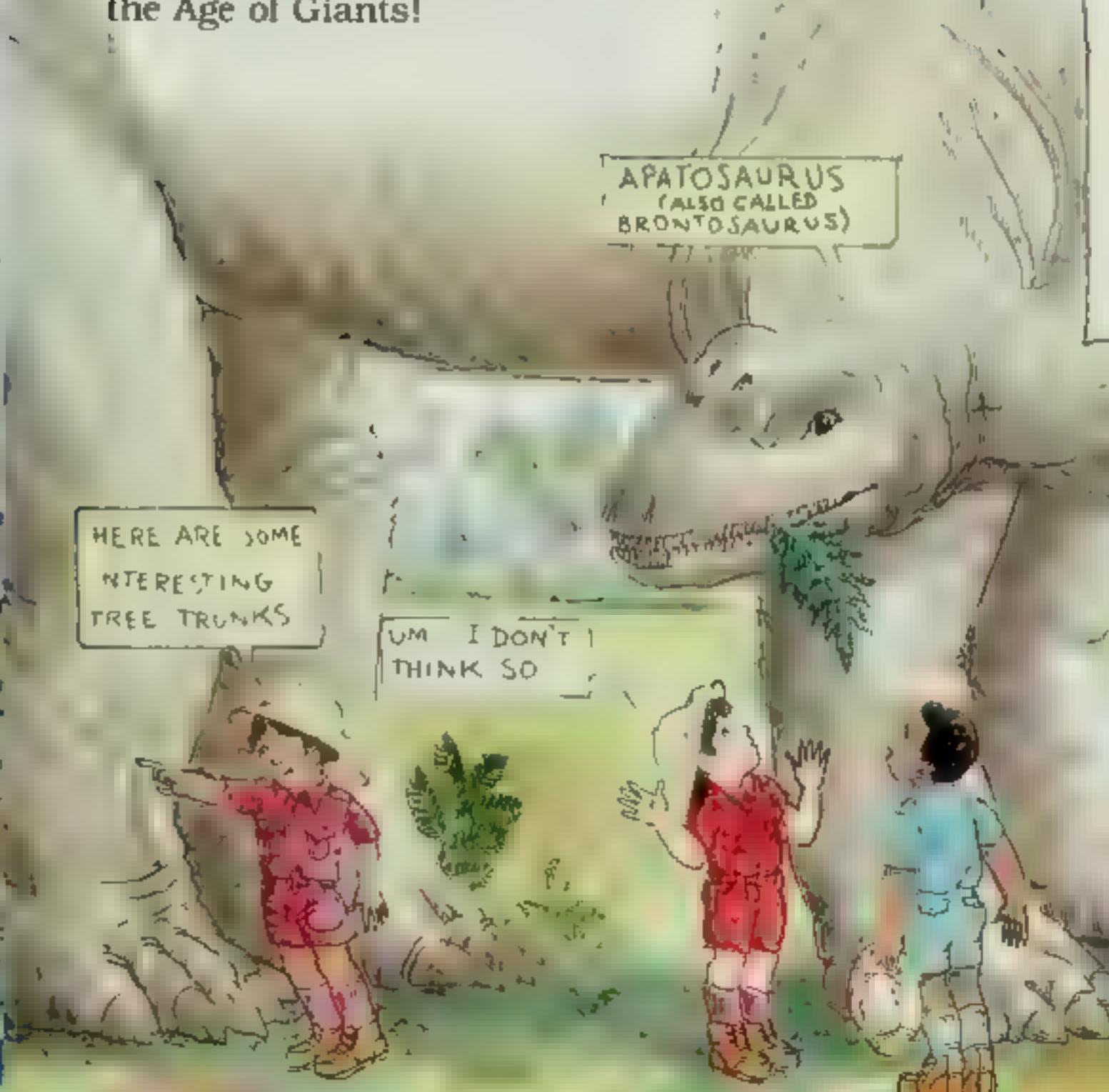
- feed their babies with mothers' milk

The last things we saw before we took off
were some small, furry animals.
Ms. Frizzle said they were the first mammals.
The hand on the clock moved ahead,
and the Triassic rain forest whizzed out of sight.

WHEN WILL WE SEE
MAIASAURA EGGS?
MAIASAURA LIVED 160 MILLION
YEARS FROM NOW. LET'S SEE
IF WE CAN FIND THEM.



Ring! Ring! The alarm went off,
and we heard Ms. Frizzle say, "Oh no!"
We had stopped too soon.
It was the Late Jurassic Period,
the Age of Giants!



WHAT WAS THE EARTH LIKE
THEN?

Continents were drifting apart

- Swampy, low-lying plains
- Beginnings of inland seas
- Beginning of Atlantic Ocean
- Warm temperatures everywhere



WHAT WERE SAUROPODS?

by Amanda Jane

Sauropods were heavy,
long-necked dinosaurs.

They walked on four legs
and ate plants.

SOME KINDS OF SAUROPODS

ULTRASAURUS

BRACHIOSAURUS

DIPLOCAULUS

APATOSAURUS

SE-MOSAURUS

SIXTY MILLION YEARS
HAVE PASSED SINCE
WE WERE HERE LAST

LOOK! THOSE
SAUROPODS ARE
SWALLOWING THEIR
FOOD WHOLE!

THEIR TEETH ARE
NOT GOOD FOR
CHEWING, PHOEBE

THEY SWALLOW
STONES TO GRIND UP
FOOD IN THEIR
STOMACHS.

IT MUST TAKE A
LOT OF PLANTS
TO FEED A
GIANT SAUROPOD

SAUROPODS MUST
SPEND MOST OF
THEIR TIME EATING

WHAT A LIFE!

DINOSAURS WERE SPECIAL
Some dinosaurs may have
traveled in herds!
None of today's reptiles do.

"Notice these sauropod dinosaurs, children,"

said Ms. Frizzle.

They were kind of impossible to miss.

They were the largest land animals that ever lived!

STONES IN STOMACH
GRIND UP FOOD

NO SWAMPS FOR SAUROPODS

by Raphie

People used to think
sauropods waded in swamps.

But fossil footprints show
they walked on land and
may have traveled in herds.

THE FOOTPRINTS
WERE MADE AT
THE SAME TIME

AND THEY ARE
ALL GOING IN THE
SAME DIRECTION

Fossil Trackway

Overhead view
of a

DINOSAUR HERD

(DINOSAUR HERDING)

WE KNOW DINOSAURS

O LAID EGGS

by Amanda Jane

Fossil dinosaur eggs have been found. Inside some, there are tiny skeletons of babies

O



O HOW BIG WERE DINOSAUR EGGS?

by Molly

The largest dinosaur egg we have found was about the size of a football!

O



Under a pile of leaves, we found some dinosaur eggs just about to hatch!

Nearby some stegosaurs — plated dinosaurs — were eating plants.

One of the stegosaurs had a hurt leg.



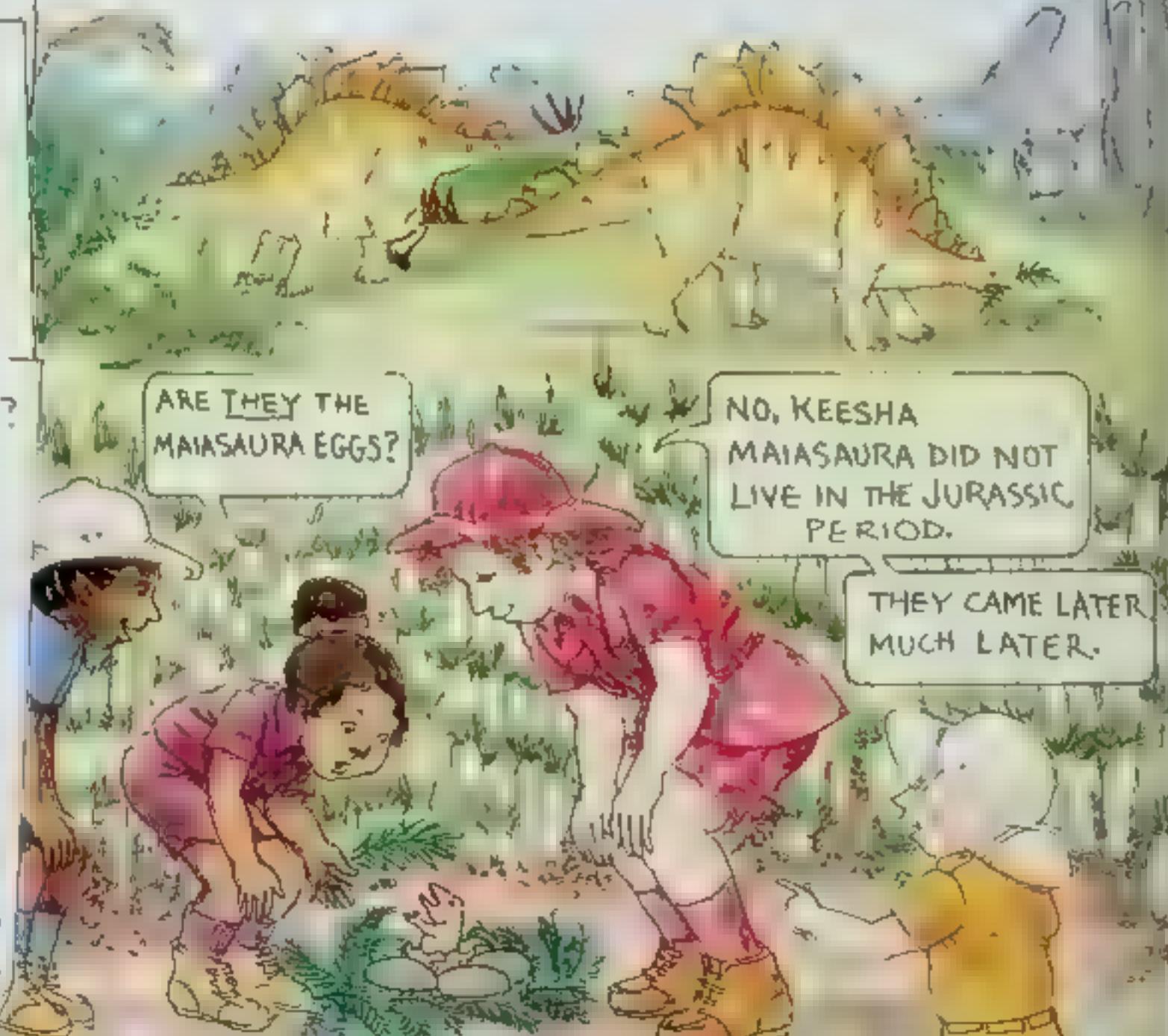
Suddenly an *Allosaurus* approached the wounded *Stegosaurus*.

Stegosaurus's spiked tail lashed out.

It missed *Allosaurus* by an inch!

What would happen next?

We held our breath



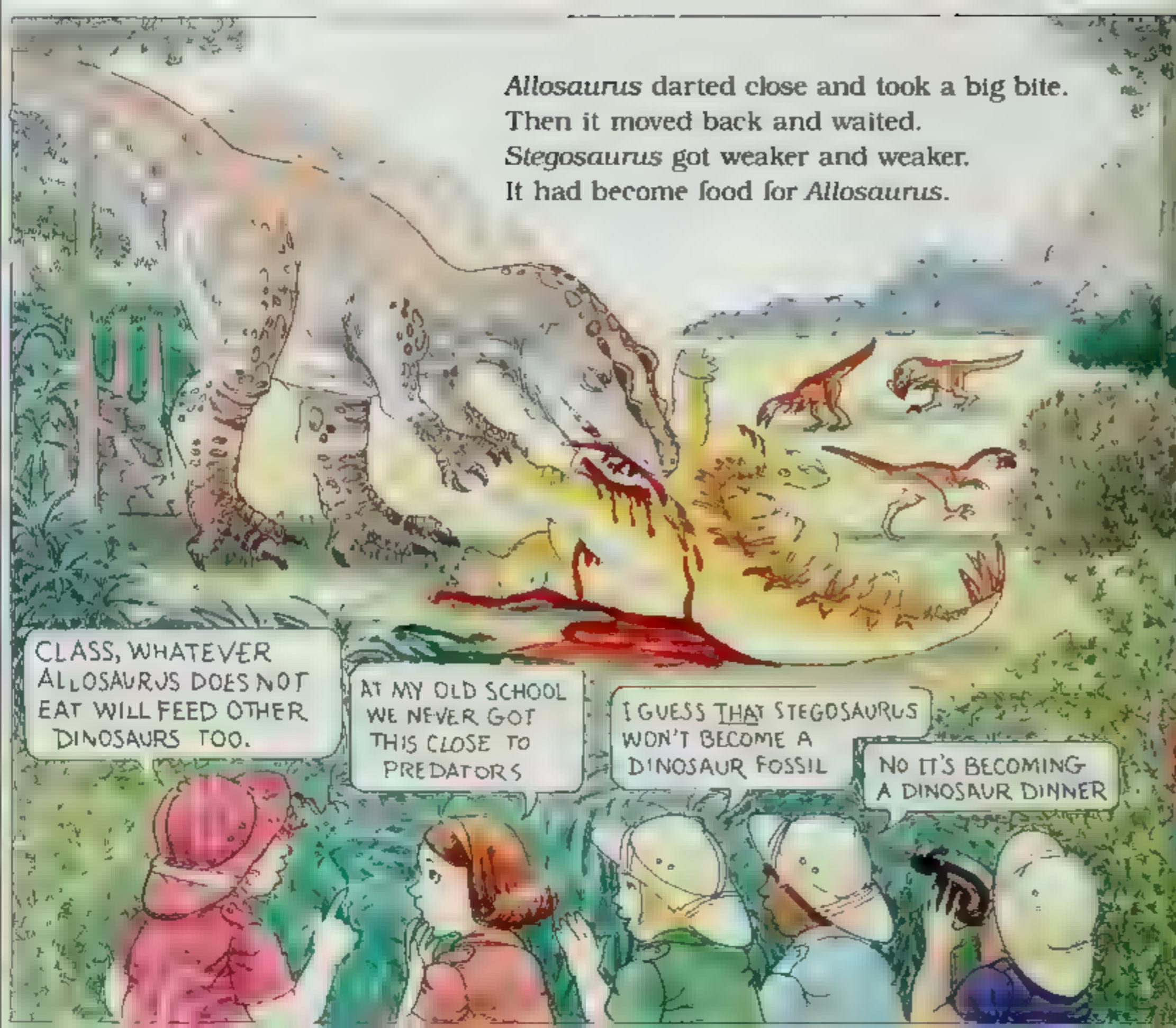
ALLOSAURUS
TOOTH
(actual size)



O IT'S HARD TO BE A HUNTER

by Alex

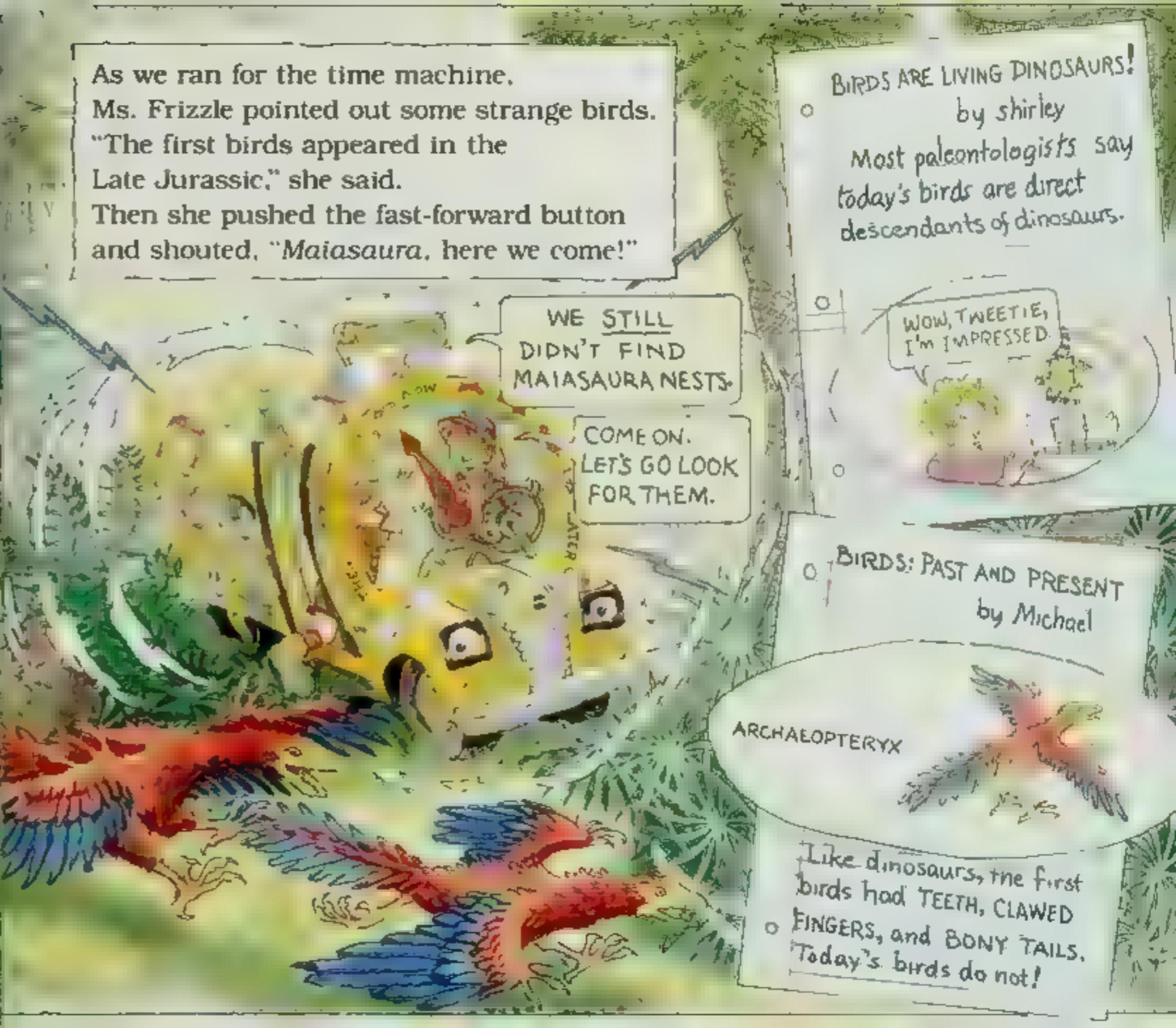
Being a predator is dangerous. Predators can get hurt or killed by their prey. This is why meat-eaters often attack prey that is weak, sick, or young



Allosaurus darted close and took a big bite.
Then it moved back and waited.
Stegosaurus got weaker and weaker.
It had become food for Allosaurus.

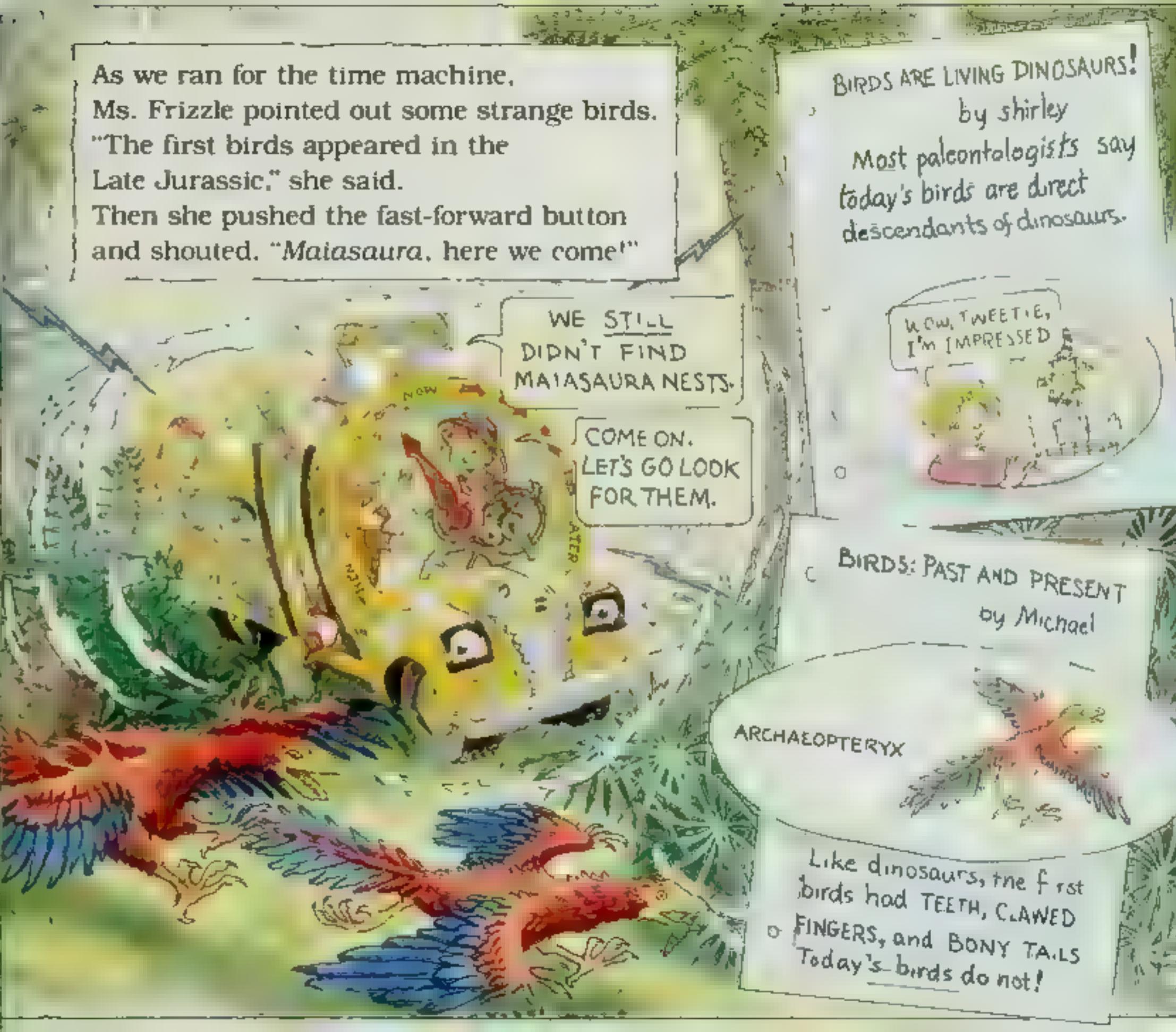
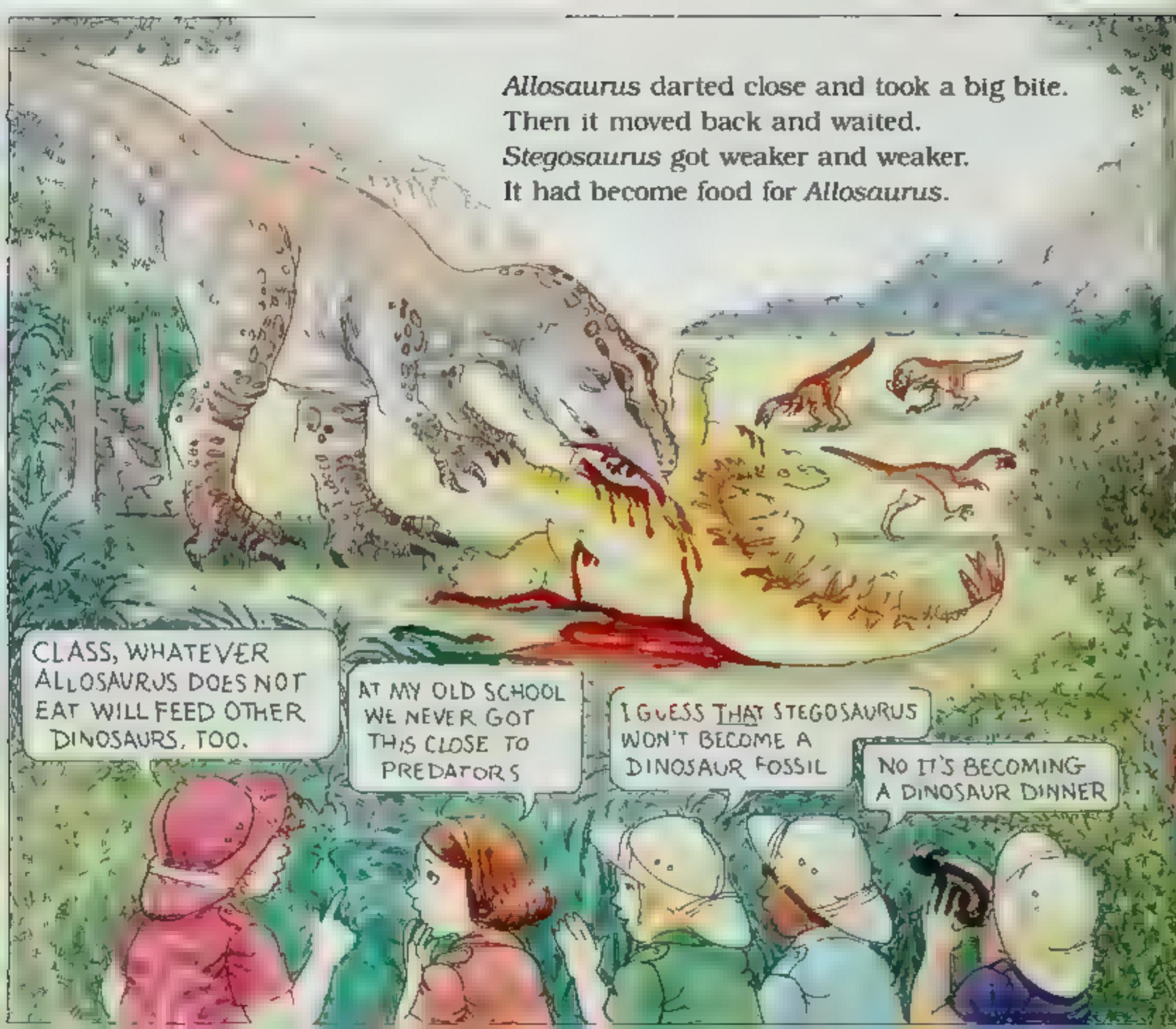
As we ran for the time machine,
Ms. Frizzle pointed out some strange birds.
"The first birds appeared in the
Late Jurassic," she said.
Then she pushed the fast-forward button
and shouted, "Maiasaura, here we come!"

BIRDS ARE LIVING DINOSAURS!
by Shirley
Most paleontologists say
today's birds are direct
descendants of dinosaurs.



Like dinosaurs, the first
birds had TEETH, CLAWED
FINGERS, and BONY TAILS.
Today's birds do not!

BIRDS: PAST AND PRESENT
by Michael



o ALL DINOSAURS WERE
LAND ANIMALS

by Gregory

No dinosaurs lived in
the sea. During the
Cretaceous, dinosaurs lived

o in places that were not
covered by water

WE WON'T SEE
ANY DINOSAURS
HERE.



WE'RE IN THE
SAME PLACE
25 MILLION
YEARS LATER

HOW TIME
FLIES

THAT'S NOT ALL
THAT FLIES.

PTERANODON

I'M HOMESICK.

I'M SEASICK

AT MY OLD SCHOOL
THE BUS DIDN'T LEAK.

CAN'T WE FIND
A DRIER TIME,
MS. FRIZZLE?



Ring! Ring! The alarm went off again.
We looked out — and then we freaked out!
Once again, we had stopped too soon.
"Here we are in the Late Cretaceous Period."
announced Ms. Frizzle.
"At this time there was a sea
right in the middle of our continent."

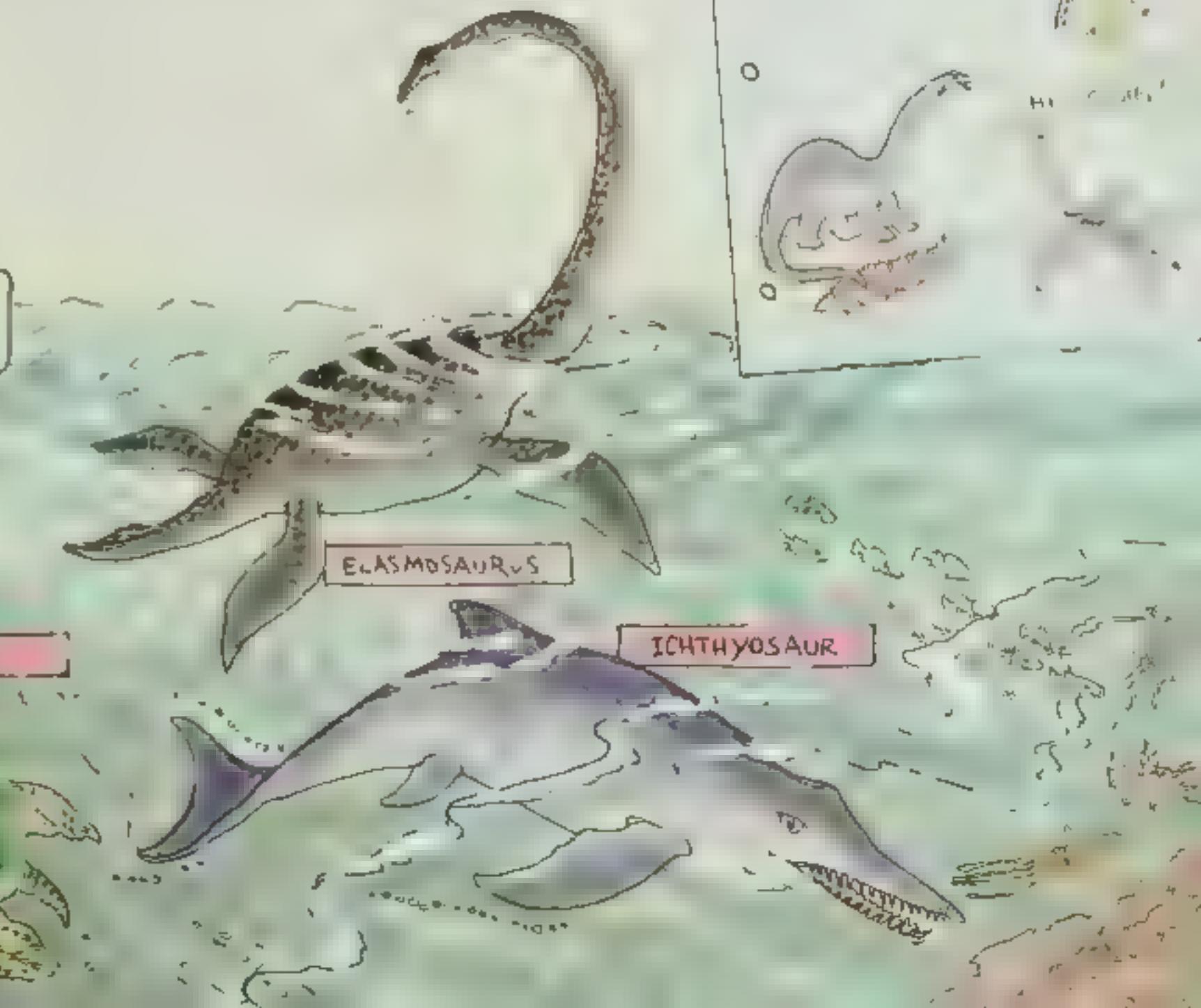
Out the windows, enormous sea reptiles swam by.
Overhead, flying reptiles glided past,
dipping their beaks in the water to catch fish.
We were getting a little wet,
so the Friz set the clock ahead again.

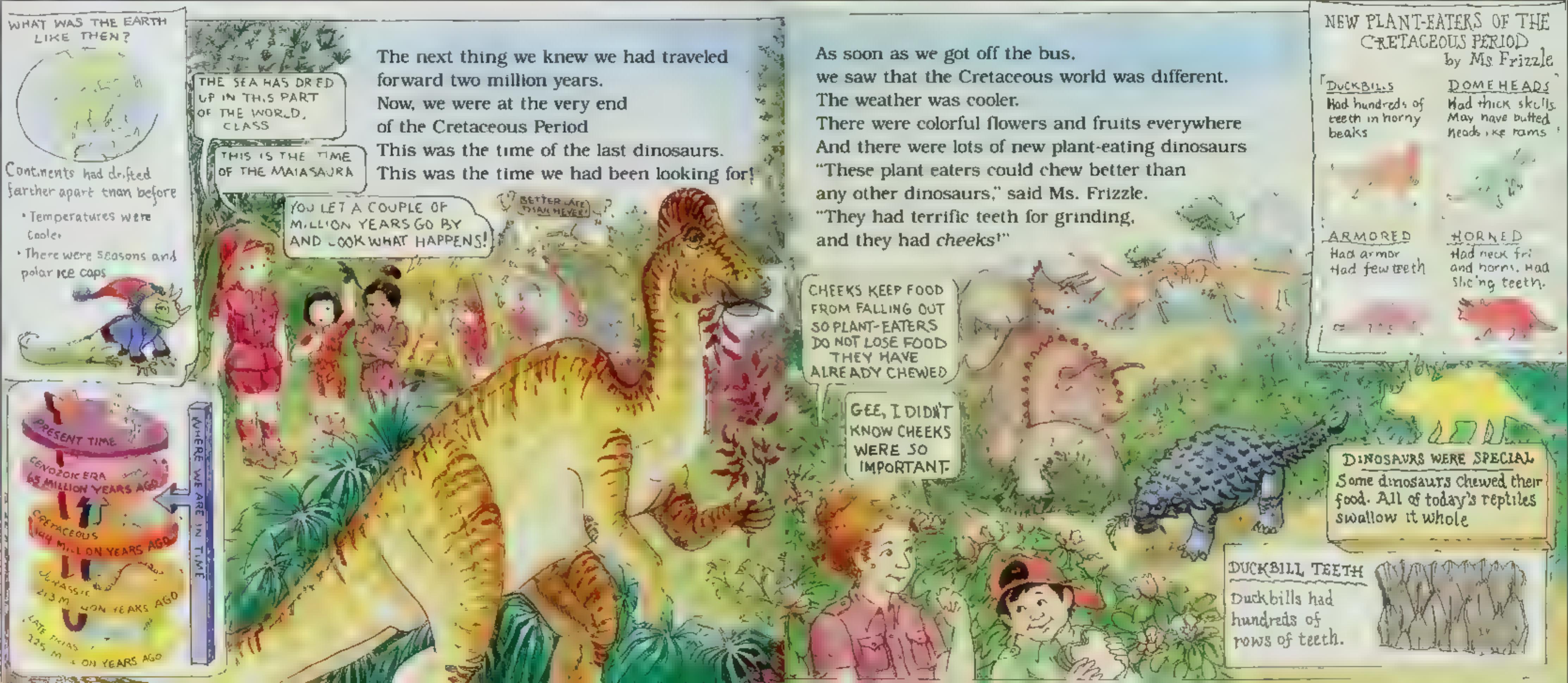
o SEA REPTILES AND FLYING
REPTILES: WERE THEY DINOSAURS?

by Tim

No, they were relatives of
dinosaurs.

o





TYRANNOSAURUS
REX
largest of dinosaur teeth
(actual size)

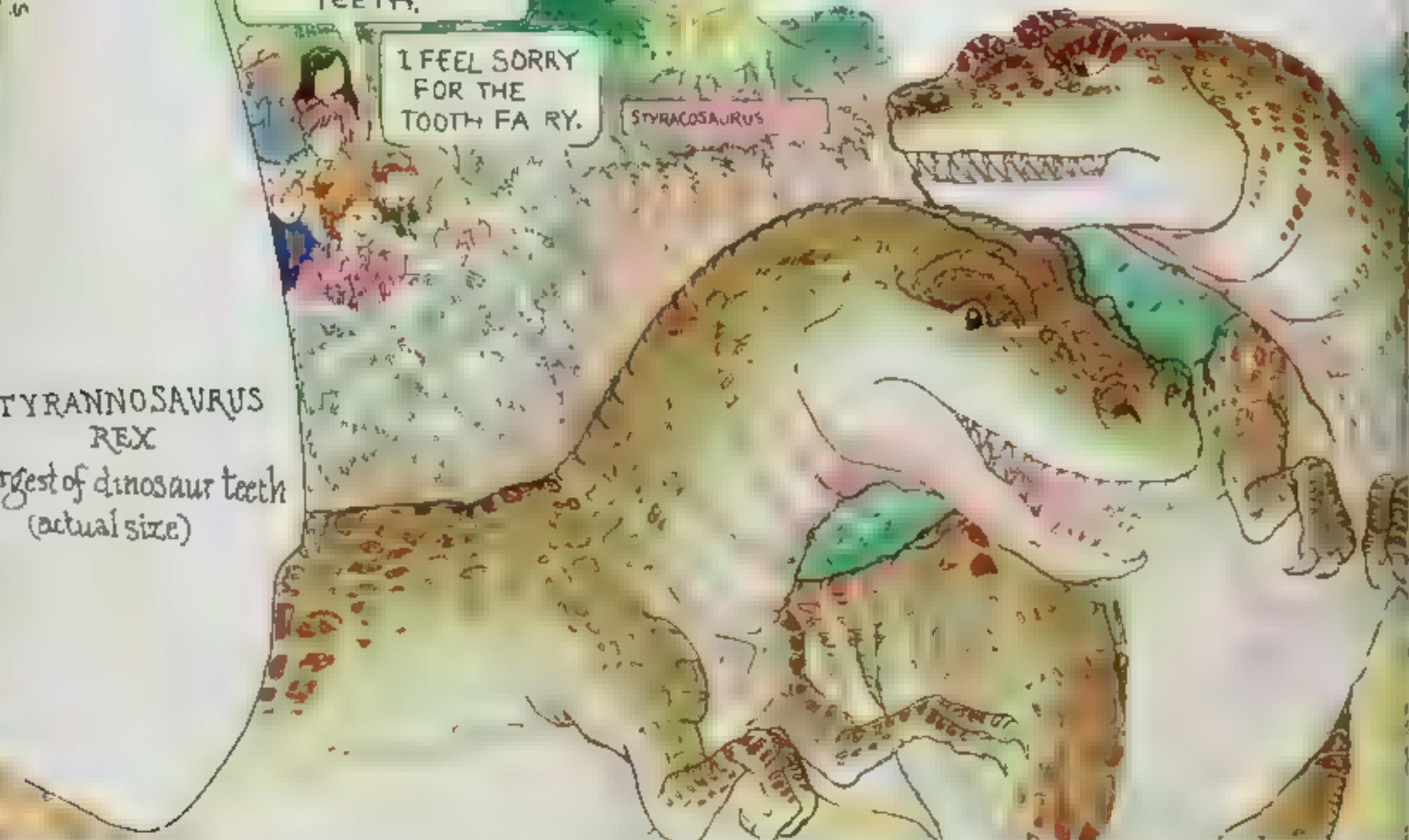
UH-OH. HERE
COMES TROUBLE!

TYRANNOSAURUS TROUBLE!

SOME OTHER DINOSAURS
HAD MORE TEETH,
BUT TYRANNOSAURS
HAD THE BIGGEST
TEETH.

I FEEL SORRY
FOR THE
TOOTH FA RY.

STYRACOSAURUS



We were watching the plant-eaters chew,
when some tyrannosaurs approached.
Tyrannosaurs were the largest meat eaters ever.
Their mouths were giant biting machines
with sixty sharp, stabbing teeth!

The tyrannosaurs were scary enough
Then a pack of Troodon showed up, too!
They were small, but there were a lot of them!
They began circling the bus to see what it was
We sized up the situation and ran.

I HOPE YOU ARE OBSERVING
THE TROODON, CLASS.
NOTICE THE SLASHING
CLAW ON EACH BACK FOOT

WE'D LIKE TO OBSERVE
THEM, MS. FRIZZLE, BUT

WE HAVE TO LEAVE...
RIGHT AWAY.

IN A HURRY... THIS INSTANT...

IN OTHER WORDS... NOW!

TROODON

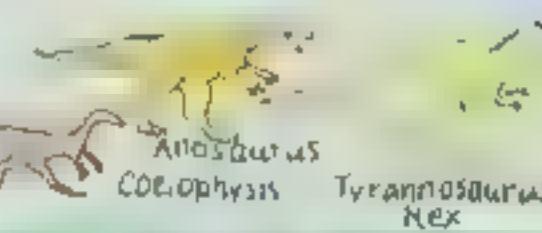
ALL MEAT-EATING DINOSAURS
WERE TWO-LEGGED

By Phoebe

Plant-eaters came in
different shapes

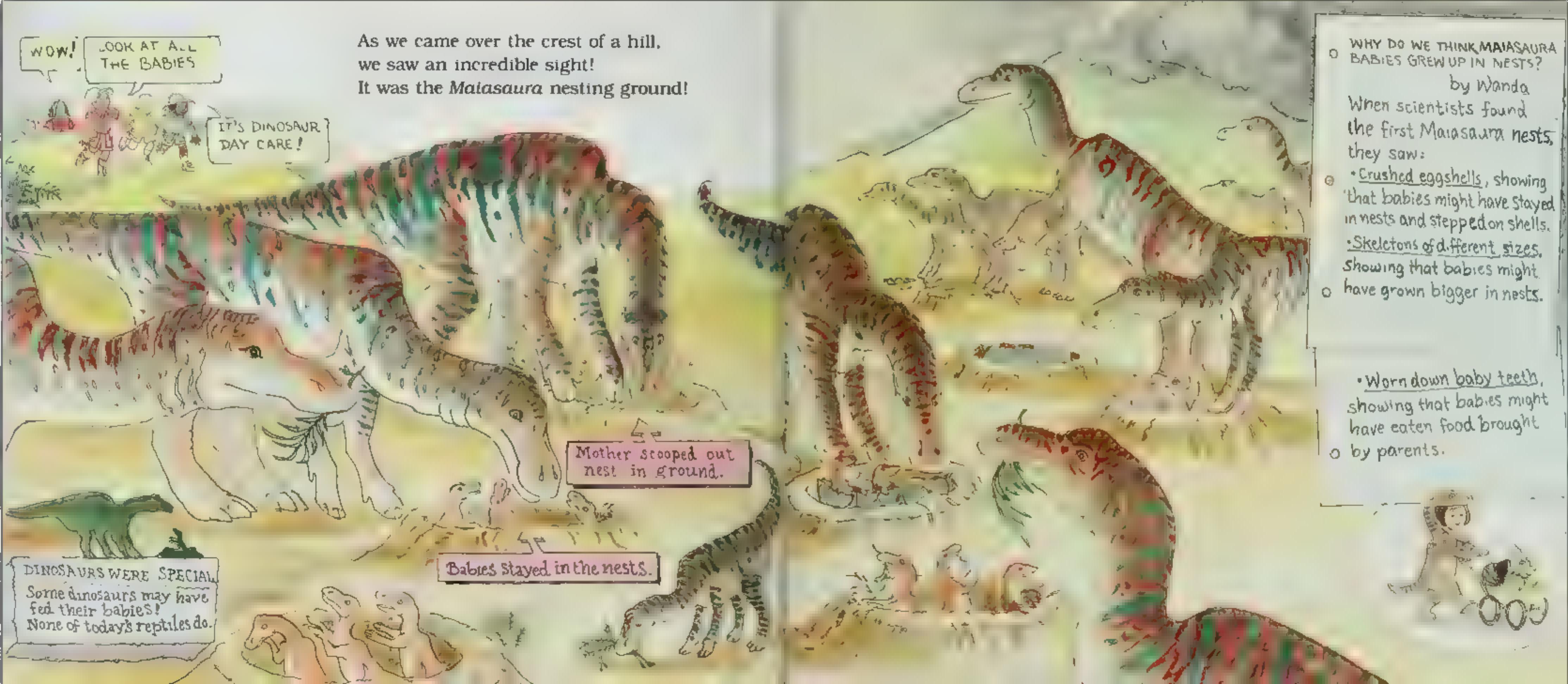


Hadrosaurus Stegosaurus Ankylosaurus
But all meat-eaters were
built on the same pattern.

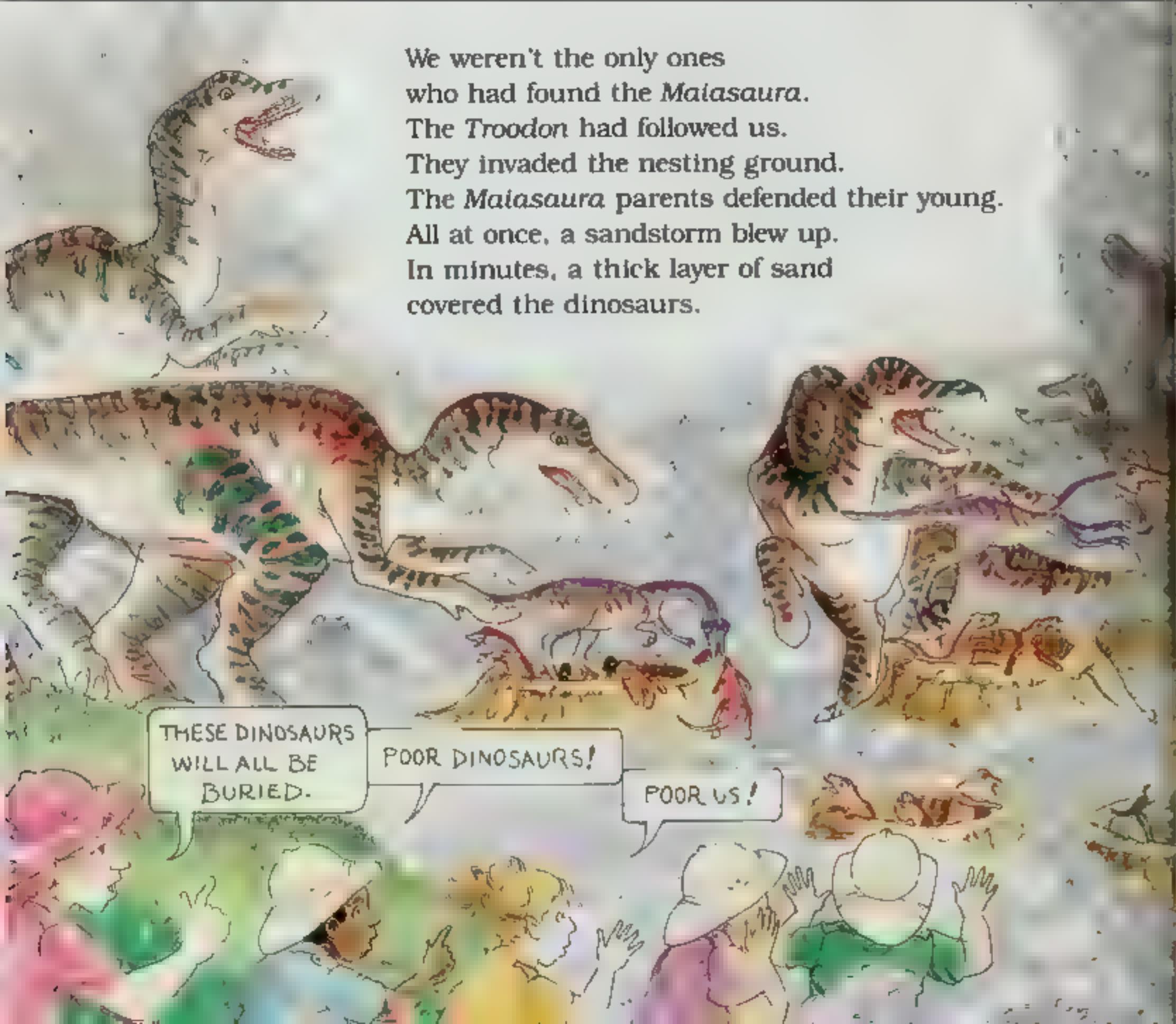


Troodon
Tooth
(actual size)

DINOSAURS WERE SPECIAL
Some dinosaurs may have
hunted in packs!
None of today's reptiles do



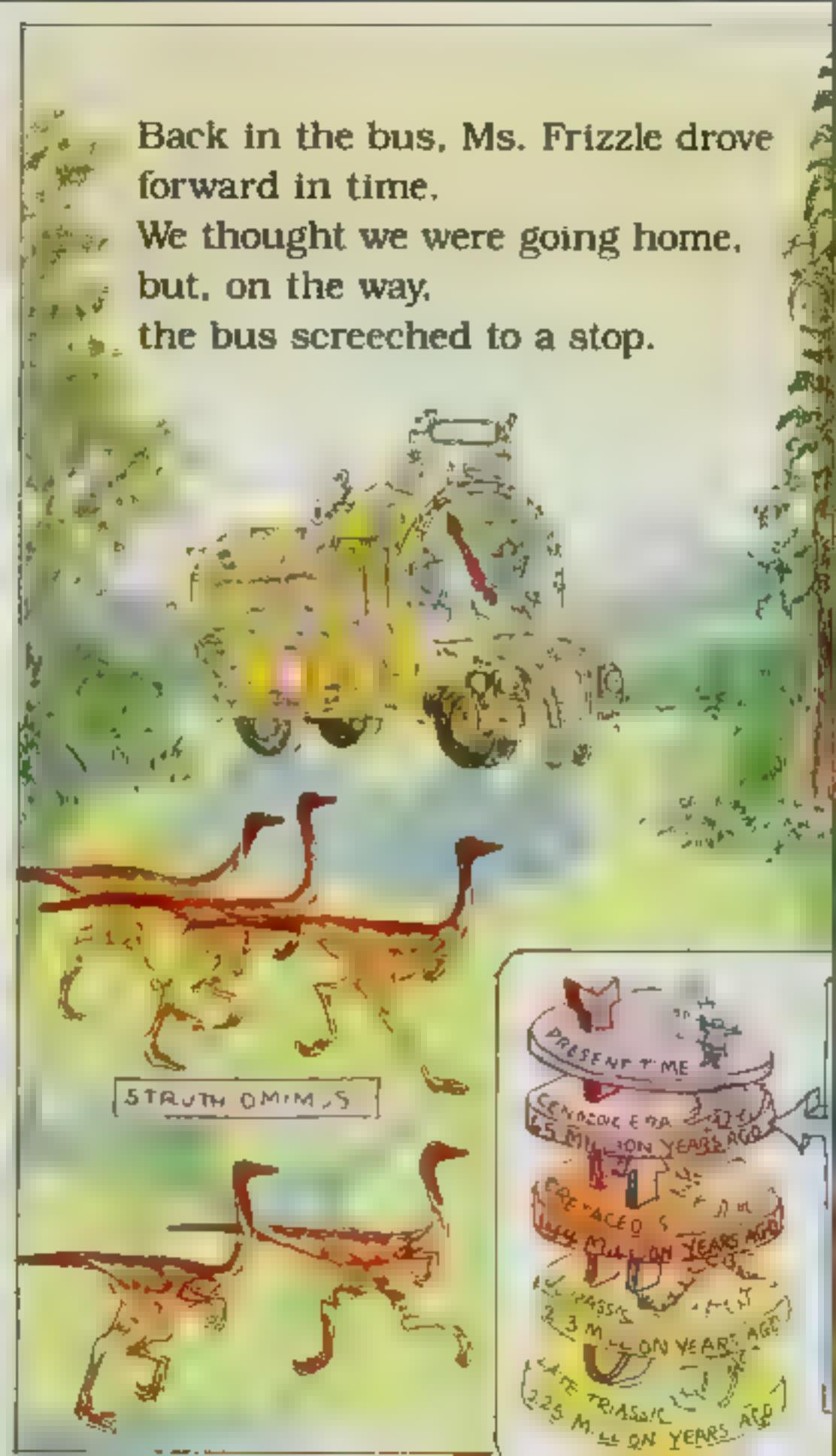
- WHY DO WE THINK *MAIASAURA* BABIES GREW UP IN NESTS?
 - by Wanda
 - When scientists found the first *Maiasaura* nests, they saw:
 - Crushed eggshells, showing that babies might have stayed in nests and stepped on shells.
 - Skeletons of different sizes, showing that babies might have grown bigger in nests.
 - Worn down baby teeth, showing that babies might have eaten food brought by parents.



We weren't the only ones
who had found the *Maiasaura*.
The *Troodon* had followed us.
They invaded the nesting ground.
The *Maiasaura* parents defended their young.
All at once, a sandstorm blew up.
In minutes, a thick layer of sand
covered the dinosaurs.



Everything happened so fast.
There was no way we could help
the dinosaurs.
Maybe they would become fossils.



Back in the bus, Ms. Frizzle drove
forward in time.
We thought we were going home,
but, on the way,
the bus screeched to a stop.

THESE DINOSAURS
WILL ALL BE
BURIED.

POOR DINOSAURS!

POOR US!

OH, NO!
I DROPPED
MY MODEL
MAIASURA!

HURRY UP
AND RUN!

STRUT OMIM'S

PRESENT TIME
CAMBRIAN ERA
1000 MILLION YEARS
REPTILES
23 MILLION YEARS
MAMMALS
2.25 MILLION YEARS

"We are in the very last minutes of the Cretaceous Period," said Ms. Frizzle. A bright light was shining in the sky. "Notice that asteroid," said the Friz. "It's a huge rock from outer space. Soon it will hit the earth."

THE ASTEROID WILL CAUSE AN ENORMOUS EXPLOSION... BLACK SOOT WILL FILL THE AIR AND BLOCK OUT THE SUN... PLANTS WON'T GROW, AND MILLIONS OF LIVING THINGS WILL BECOME EXTINCT — INCLUDING THE DINOSAURS

MS. FRIZZLE, COULD WE LEAVE BEFORE THE ASTEROID HITS?

LAMBEOSAURUS

The Friz pushed the forward button, and we started again.

WE'RE ONLY 65 MILLION YEARS FROM HOME, CLASS.

STEP ON IT, PLEASE...

When the alarm rang, we were back in our own time. The paleontologists were worried about us, and came looking for us.

We gave them a tip on a fossil site. Then we waved good-bye and drove back to school.

GO THAT WAY ABOUT A HUNDRED STEPS AND START DIGGING

I'LL BET YOU'LL FIND SOME MAIASAURA NESTS

IF YOU SAY SO, VAL

WE'LL SEND YOU A COPY OF OUR VIDEO.

THE LAST WORD FROM DOROTHY ANN A kind of animal or plant is extinct when every single one has died.

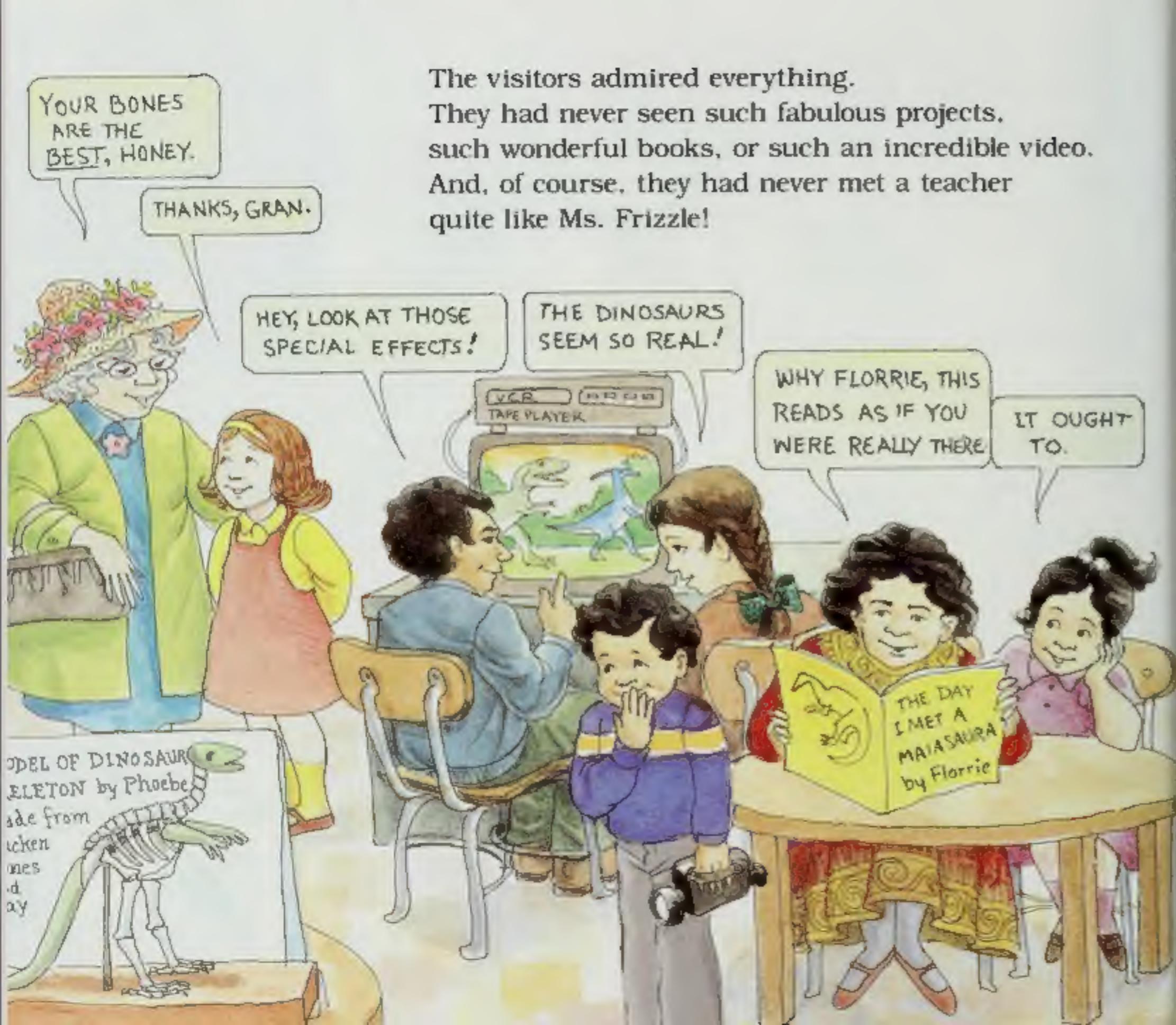
EXTINCT LIFETIME TAKING

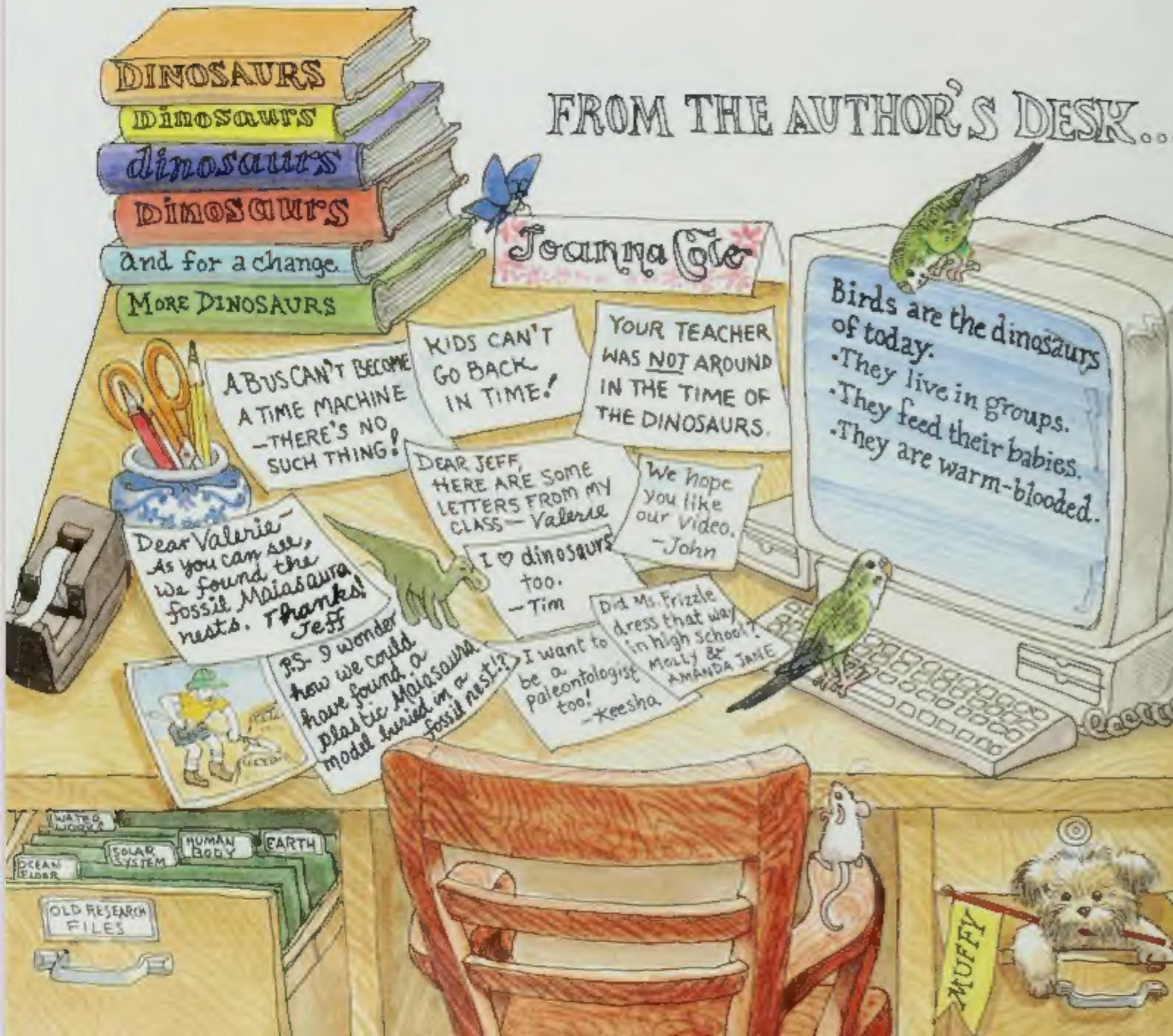
WHERE WE ARE 21 ME
IN 100,000
IN 10,000
IN 1,000
IN 100
IN 10
IN 1



In the classroom, we made a chart of our trip to the dinosaurs. Just as we were finishing it, people started coming in for Visitors Day.









TO THE
DINOSAUR
EXHIBIT
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